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ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: COMPOSITIONS AND METHODS RELATED TO PRODUCTION OF ERYTHROPOIETIN

(57) Abstract: Disclosed are methods and compositions that are related to the production of erythropoietin. The disclosed compositions generally comprise a poly amino acid, such as a poly amino acid comprising one or more glutamic acid residues. The production of erythropoietin by use of the disclosed compositions and methods can take place *in vivo*, in which the proliferation of a subject's erythropoietin-producing cells leads to an increased level of production of erythropoietin, *in vitro*, in which increased proliferation of cultured erythropoietin-producing cells leads to an increased production of erythropoietin, *ex vivo*, in which cells or tissues harvested from a subject produce erythropoietin. The disclosed compositions can be administered to a subject or applied to cells or tissues to stimulate increased production of erythropoietin. The disclosed compositions and methods can be used, for example, to treat anemia, such as anemia associated with diseases and disorders such as chronic renal failure, end stage renal disease, malignancies, HIV infections and AIDS, rheumatoid arthritis, myeloma, and myeloplastic syndrome, and other diseases and disorders.

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/11003

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : A61K 38/00, 47/30, 9/00, 45/00; C12N 5/00, 5/08; C12P 21/06; C08G 69/08 US CL : 514/2, 772.3; 424/280.2, 400; 435/7.21, 68.1, 369, 375, 377; 528/310 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 514/2, 772.3; 424/280.2, 400; 435/7.21, 68.1, 369, 375, 377; 528/310 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
T	US 6,784,154 B2 (WESTENFELDER) 31 August 2004 (31.08.2004), entire document.	1-20, 28, 30-39, 41-51, and 53-102
X	WO 01/66149 A2 (VALENTIS, INC.) 13 September 2001 (13.09.2001), see the abstract, pp. 33 and 55.	1-15, 19, 20, 28, 30-39, 41-41, and 53-102
X	US 6,221,397 B1 (RUSSELL-JONES et al.) 24 April 2001 (24.04.2001), see col. 5, line 13, col. 7, lines 30-65 and Scheme 1.	1-20, and 28
X	TODD, et al. Poly-L-Aspartic Acid Protects Cultured Human Proximal Tubule Cells Against Aminoglycoside-Induced Electrophysiological Alterations. Toxicology Lett. 1997, Vol. 90, Nos. 2 and 3, pages 217-221, see Figures 1 and 2.	2, 6-14, 19, 30-35, 37-39, 98-102
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 02 February 2005 (02.02.2005)		Date of mailing of the international search report 01 MAR 2005
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Susan Hanley <i>J. Roberts for</i> Telephone No. (571) 272-1600

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US04/11003

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☒ Claims Nos.: 21-27, 29, 40 and 52  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
- Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/11003

Continuation of B. FIELDS SEARCHED Item 3:

STN: REGISTRY, CAPLUS, MEDLINE

search terms: poly-D,L-glutamic acid, polyD,L-aspartic acid, erythropoietin, cell culture, induce